

REMARKS

STATUS SUMMARY

Claims 1-17 are pending in the present application. Claim 1 is allowed. Claims 2-17 presently stand rejected. Claims 4-6 and 12 have been canceled herein without prejudice. Claims 1-3, 7-9, and 13-16 have been amended herein. New claims 18-24 have been added.

DRAWINGS

The drawings are objected to because boxes 104, 116 and 128 in Figures 1 and 2 must be labeled. In accordance with 37 C.F.R. § 1.121(d), Replacement Sheets have been submitted herewith for Figures 1 and 2 in which appropriate labels have been added for the boxes 104, 116 and 128.

In view of the foregoing, Applicants respectfully submit that the objection to the drawings has been overcome, and respectfully request that this objection be withdrawn at this time.

CLAIM REJECTIONS - 35 U.S.C. § 112, FIRST PARAGRAPH

Claims 2-17 are rejected under 35 U.S.C. § 112, first paragraph. The Examiner contends that claims 2-17 contain subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, the Examiner contends that “a single antenna” and “a Global Positioning System (GPS) receiver that shares an antenna with a transceiver”, as

claimed, are not disclosed. Applicants respectfully traverse this rejection for the following reasons.

While Figures 1 and 2 of the present application illustrate—as one embodiment—an antenna (102) used by the transceiver and a separate antenna (118) used by the GPS receiver, the specification makes clear to persons of ordinary skill in the art that the functions of the illustrated antennas (118) and (102) could be readily combined into a single multi-band antenna. It is believed that an additional drawing of a single-antenna embodiment is not necessary in the present application in view of the clarity of the specification, the illustration of the circuitry in Figures 1 and 2, and the general or background knowledge of persons of ordinary skill in the art.

As described in the specification, the subject matter disclosed therein can be applied, for example, to wireless handsets that contain a GPS receiver to reduce or eliminate GPS desensitization caused by wireless transmissions. *See* specification, p.5, lines 9-16. According to the specification, “[t]ypically in such handsets, the wireless antenna and the GPS antenna are in close proximity or, preferably for low cost, are the same antenna.” Specification, p.5, lines 13-14. In discussing an advantage of the subject matter disclosed therein, the specification further states:

Effectively the system implements a cancellation feedback algorithm, and the immunity of the GPS receiver is achieved independent of the physical design of the handset, allowing great flexibility for the handset designer in selecting the degree of co-location of the GPS and wireless antennas, *including the highly desirable case of using a single multi-band antenna.*

Specification at p. 6, lines 13-16. Moreover, in referring to Figure 1, the specification states: “System 100 also comprises a GPS antenna 118, *which may be the same antenna as antenna 102,*

but, for ease of illustration of the problem to be solved by the present invention, is shown as a separate antenna 118.” Specification at p. 7, lines 10-12.

Finally, the primary reference cited by the Examiner, U.S. Patent No. 6,542,821 to Krasner (hereinafter “Krasner”), appears to take a similar approach in describing a combined GPS/communication receiver:

Cross-interference typically occurs due to a high degree of coupling between the transmitted cellular telephone signal through antenna **100** and the GPS receiving antenna **111**. This is especially true in the case where the antenna units **100** and **111** are collocated or share portions of their mechanical assembly in order to conserve physical space or reduce cost.

Krasner, col. 6, lines 35-41. *See also* Krasner at col. 8, 28-29 (“[O]ne or more . . . antenna units may be shared between the two sections”).

Thus, applicants respectfully submit that one of ordinary skill in the art would understand that the subject matter disclosed in the present application could be applied to address problems in the prior art in the case of either two antennas or a single antenna. Moreover, by reading the claims of the present application, especially in view of the specification and drawings, one of ordinary skill in the art would be enabled to construct the claimed wireless mobile terminal system, and/or implement the claimed method for reducing interference, in the case of either two antennas or a single antenna. In the case of a single antenna, one of ordinary skill in the art would be enabled to make any appropriate or necessary modifications to the exact embodiment illustrated in Figure 1 or 2, by consulting the subject matter disclosed in the present application in combination with background knowledge that is necessary to be expressly included in the present application.

In view of the foregoing, applicants respectfully submit that claims 2-17 as originally filed meet the requirements of 35 U.S.C. § 112, first paragraph, and respectfully request that this rejection be withdrawn at this time.

CLAIM REJECTIONS - 35 U.S.C. § 112, SECOND PARAGRAPH

Claims 2-17 are also rejected under 35 U.S.C. § 112, second paragraph. The Examiner contends that claims 2-17 are indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention. Specifically, as to claims 2 and 10, the Examiner contends that “a single antenna” and “a Global Positioning System (GPS) receiver that shares an antenna with a transceiver”, as claimed, are misdescriptive and indefinite. Applicants respectfully traverse this rejection for the same reasons as discussed hereinabove with regard to the rejection under 35 U.S.C. § 112, first paragraph.

As to claim 8, the Examiner contends that there is no antecedent basis for “the combining circuit”. As indicated hereinabove, applicants have amended claim 8 by replacing “combining circuit” with “feedback loop” and changing the dependency of claim 8.

In view of the foregoing, applicants respectfully submit that claim 8 as amended, and claims 2-7 and 9-17 as originally filed, meet the requirements of 35 U.S.C. § 112, second paragraph, and respectfully request that this rejection be withdrawn at this time.

CLAIM REJECTIONS - 35 U.S.C. § 102

Claims 10-12 are rejected under 35 U.S.C. § 102(e) as being anticipated by Krasner.

Applicants respectfully traverse this rejection because Krasner fails to teach each and every element or feature recited in the rejected claims.

Claim 10 recites “replicating a first transmission of the transceiver, wherein the first transmission of the receiver emanates from an antenna receiving GPS signals”, “coupling the replicated transmission into a front end of the GPS receiver”, and “at least partially canceling the first transmission using the replicated transmission”. An example of this process is given by applicants’ specification as follows:

A correction “replica” signal is obtained from the power-amplifier section of the wireless transceiver. The replica signal is then provided to the GPS receiver as an interference cancellation signal. The combined wireless transceiver and GPS receiver contains circuitry that allows digitally controlled adjustment of the amplitude and phase of the replica signal, such that when added with the composite signal received by the GPS front end, the net power of undesired wireless signal in said GPS circuit is minimized or nulled.

Specification, p. 6, lines 3-9.

It thus can be seen that the method recited in claim 10 reduces interference by using the replicated transmission to at least partially cancel the transmission of the transceiver. Such a technique is patentably different from the teaching by Krasner of gating, blocking or ignoring an incoming GPS signal.

More specifically, referring to Figure 2 of Krasner, Krasner in one embodiment teaches a combined GPS/communication receiver that transmits a power level control signal (105) from the microprocessor (104) of the communication section of the circuitry (i.e., a cellular telephone). The power level control signal (105) serves as a gating signal (110) that is transmitted to the GPS

receiver (130). If the power level of the communication power amplifier (108) is high relative to GPS signals, the gating signal (110) causes a switch (112) to turn off so that no data are passed through to the GPS receiver. In this manner, GPS signals are gated out or blocked during high-power cellular telephone transmissions. *See Krasner*, col. 7, lines 12-28.

In an alternative embodiment taught by Krasner, the gating signal (110) is transmitted to the GPS signal processing circuit (114) or microprocessor (115) to cause incoming GPS signals “to be disregarded by the processing circuitry during periods in which the cellular telephone is transmitting, even though these signals are received by GPS receiver 130.” Krasner, col. 7, lines 52-54.

Accordingly, neither embodiment disclosed by Krasner teaches using a replicated transmission to at least partially cancel the transmission of the transceiver, but instead either blocks or ignores any GPS signal received during cellular telephone transmissions.

Claims 11 and 12 depend from claim 10, and therefore are distinguishable over Krasner for the same reasons.

In view of the foregoing, applicants respectfully submit that claims 10-12 are patentable under 35 U.S.C. § 102(e) over Krasner, and therefore request that the rejection to claims 10-12 under 35 U.S.C. § 102(e) be withdrawn at this time.

OTHER CLAIM AMENDMENTS

Claim 1 has been amended to better distinguish among the two antennas recited therein.

Claims 2, 3 and 7-9 have been amended to better conform to the language recited in claim 1.

Claims 3, 7, 8, 13 and 16 have been amended to change their dependencies.

Claim 7 has been amended to improve readability.

Claims 11 and 13-15 have been amended to better conform to the language recited in claim 10.

None of the amendments to the claims discussed in this section have been made in response to a substantive rejection or for any other purpose relating to patentability.

The amendments made to the claims are believed to be fully supported by the present application as originally filed. Accordingly, no new matter is believed to have been added.

NEW CLAIMS

New claims 18-24 have been added herein. Claims 18-24 recite features believed to be fully supported by the application as originally filed, and accordingly no new matter is believed to have been added.

Claim 18 depends from claim 10, and therefore is patentable for the same reasons as regards claim 10. Claims 19-24 are believed to patentable over the prior art of record.

Applicants respectfully request entry and allowance of new claims 18-24.

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CONCLUSION

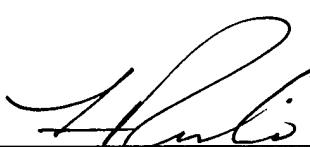
In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

Respectfully submitted,

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